RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/069,772B
Source: IFW16
Date Processed by STIC: 10/12/06

ENTERED

IFW16

RAW SEQUENCE LISTING DATE: 10/12/2006
PATENT APPLICATION: **US/10/069,772B** TIME: 14:51:03

Input Set : **A:\50669.APP**
Output Set: **N:\CRF4\10122006\J069772B.raw**

```
 3 <110> APPLICANT: FEUSSNER, IVO
 4       HORNUNG, ELLEN
 5       FRITSCHE, KATHRIN
 6       PEITZSCH, NICOLA
 7       RENZ, ANDREAS
 9 <120> TITLE OF INVENTION: FATTY ACID DESATURASE GENE FROM PLANTS
11 <130> FILE REFERENCE: 50669
13 <140> CURRENT APPLICATION NUMBER: 10/069,772B
14 <141> CURRENT FILING DATE: 2002-02-28
16 <150> PRIOR APPLICATION NUMBER: PCT/EP00/08222
17 <151> PRIOR FILING DATE: 2000-08-23
19 <150> PRIOR APPLICATION NUMBER: DE 199 41 609.5
20 <151> PRIOR FILING DATE: 1999-09-01
22 <160> NUMBER OF SEQ ID NOS: 19
24 <170> SOFTWARE: PatentIn Ver. 3.3
26 <210> SEQ ID NO: 1
27 <211> LENGTH: 1285
28 <212> TYPE: DNA
29 <213> ORGANISM: Calendula officinalis
31 <220> FEATURE:
32 <221> NAME/KEY: CDS
33 <222> LOCATION: (42)..(1175)
35 <400> SEQUENCE: 1
36 aaaagctcac ttctctgtga gggtaattat atatcaacaa c atg ggt gct ggt ggt 56
37                                                 Met Gly Ala Gly Gly
38                                                   1               5
40 cgg atg tcg gat cca tct gag gga aaa aac atc ctt gaa cgt gtg cca   104
41 Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile Leu Glu Arg Val Pro
42                 10                  15                  20
44 gtc gat cca ccg ttc acg tta agc gat ctg aag aaa gcg att cct acc   152
45 Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys Lys Ala Ile Pro Thr
46             25                  30                  35
48 cat tgc ttt gag cga tct gtc atc cgg tca tca tac tat gtt gtt cat   200
49 His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser Tyr Tyr Val Val His
50         40                  45                  50
52 gat ctc att gtt gcc tat gtc ttc tac tac ctt gca aac acg tat atc   248
53 Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu Ala Asn Thr Tyr Ile
54     55                  60                  65
56 cct ctt att cct aca cct ctg gct tac cta gca tgg ccc gtt tac tgg   296
57 Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala Trp Pro Val Tyr Trp
58 70                  75                  80                  85
60 ttt tgt caa gct agc atc ctc acc ggc ctc tgg gtc atc ggt cac gaa   344
61 Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp Val Ile Gly His Glu
```

see p. 6

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62                  90                  95                  100
64 tgt ggt cac cat gca ttt agc gac tac cag ttg att gat gac att gtt   392
65 Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu Ile Asp Asp Ile Val
66              105                 110                 115
68 gga ttc gtg ctc cat tcg gct ctc ctc acc ccg tat ttc tct tgg aaa   440
69 Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro Tyr Phe Ser Trp Lys
70          120                 125                 130
72 tat agc cac agg aat cac cac gcc aac aca aat tca ctc gat aac gat   488
73 Tyr Ser His Arg Asn His His Ala Asn Thr Asn Ser Leu Asp Asn Asp
74      135                 140                 145
76 gaa gtt tac att cct aaa cgt aag tcg aag gtc aag att tat tcc aaa   536
77 Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val Lys Ile Tyr Ser Lys
78 150                 155                 160                 165
80 ctt ctt aac aat cca ccc ggg cga gtg ttc act ttg gtg ttt cgg ttg   584
81 Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr Leu Val Phe Arg Leu
82                  170                 175                 180
84 act tta gga ttt ccg tta tac ctc tta act aat atc tcg ggc aag aaa   632
85 Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn Ile Ser Gly Lys Lys
86              185                 190                 195
88 tac ggg agg ttt gcc aac cac ttt gat ccc atg agt cca att ttc aac   680
89 Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met Ser Pro Ile Phe Asn
90          200                 205                 210
92 gat cgt gaa cgc gtt caa gtt ttg cta tcc gat ttc ggt ctt ctc gct   728
93 Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp Phe Gly Leu Leu Ala
94      215                 220                 225
96 gta ttt tat gca atc aag ctt ctt gta gca gca aaa ggg gca gct tgg   776
97 Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala Lys Gly Ala Ala Trp
98 230                 235                 240                 245
100 gta atc aac atg tac gca att cca gta cta ggt gta agc gtg ttc ttc   824
101 Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly Val Ser Val Phe Phe
102                 250                 255                 260
104 gtt ttg atc aca tat ttg cac cac acc cat ctc tca ctc cct cat tat   872
105 Val Leu Ile Thr Tyr Leu His His Thr His Leu Ser Leu Pro His Tyr
106             265                 270                 275
108 gat tca acc gaa tgg aac tgg atc aaa ggc gcc tta tca aca atc gat   920
109 Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala Leu Ser Thr Ile Asp
110         280                 285                 290
112 agg gat ttc ggg ttc ctg aat cgg gtt ttc cac gac gtt aca cac act   968
113 Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His Asp Val Thr His Thr
114     295                 300                 305
116 cac gtc ttg cat cat ttg atc tca tac att cca cat tat cat gca aag   1016
117 His Val Leu His His Leu Ile Ser Tyr Ile Pro His Tyr His Ala Lys
118 310                 315                 320                 325
120 gaa gca agg gat gca atc aag cca gtg ttg ggc gag tac tat aaa atc   1064
121 Glu Ala Arg Asp Ala Ile Lys Pro Val Leu Gly Glu Tyr Tyr Lys Ile
122                 330                 335                 340
124 gac agg act cca att ttc aaa gca atg tat aga gag gct aag gaa tgc   1112
125 Asp Arg Thr Pro Ile Phe Lys Ala Met Tyr Arg Glu Ala Lys Glu Cys
126             345                 350                 355
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RAW SEQUENCE LISTING DATE: 10/12/2006
PATENT APPLICATION: US/10/069,772B TIME: 14:51:03

Input Set : A:\50669.APP
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```
128 atc tac atc gag ccc gat gag gat agc gag cac aaa ggt gtg ttc tgg   1160
129 Ile Tyr Ile Glu Pro Asp Glu Asp Ser Glu His Lys Gly Val Phe Trp
130         360                 365                 370
132 tac cac aag atg taa tcaaaaaggt gtatgtcaat gcaattgtat gcttaattaa   1215
133 Tyr His Lys Met
134     375
136 gttgttaaac tttctattcc gtgtaataaa ttatcattaa gagaaaaaaa aaaaaaaaaa 1275
138 aaaaaaaaaa                                                      1285
141 <210> SEQ ID NO: 2
142 <211> LENGTH: 377
143 <212> TYPE: PRT
144 <213> ORGANISM: Calendula officinalis
146 <400> SEQUENCE: 2
147 Met Gly Ala Gly Gly Arg Met Ser Asp Pro Ser Glu Gly Lys Asn Ile
148   1               5                  10                  15
150 Leu Glu Arg Val Pro Val Asp Pro Pro Phe Thr Leu Ser Asp Leu Lys
151              20                  25                  30
153 Lys Ala Ile Pro Thr His Cys Phe Glu Arg Ser Val Ile Arg Ser Ser
154          35                  40                  45
156 Tyr Tyr Val Val His Asp Leu Ile Val Ala Tyr Val Phe Tyr Tyr Leu
157      50                  55                  60
159 Ala Asn Thr Tyr Ile Pro Leu Ile Pro Thr Pro Leu Ala Tyr Leu Ala
160  65                  70                  75                  80
162 Trp Pro Val Tyr Trp Phe Cys Gln Ala Ser Ile Leu Thr Gly Leu Trp
163                  85                  90                  95
165 Val Ile Gly His Glu Cys Gly His His Ala Phe Ser Asp Tyr Gln Leu
166              100                 105                 110
168 Ile Asp Asp Ile Val Gly Phe Val Leu His Ser Ala Leu Leu Thr Pro
169          115                 120                 125
171 Tyr Phe Ser Trp Lys Tyr Ser His Arg Asn His His Ala Asn Thr Asn
172      130                 135                 140
174 Ser Leu Asp Asn Asp Glu Val Tyr Ile Pro Lys Arg Lys Ser Lys Val
175 145                 150                 155                 160
177 Lys Ile Tyr Ser Lys Leu Leu Asn Asn Pro Pro Gly Arg Val Phe Thr
178                 165                 170                 175
180 Leu Val Phe Arg Leu Thr Leu Gly Phe Pro Leu Tyr Leu Leu Thr Asn
181              180                 185                 190
183 Ile Ser Gly Lys Lys Tyr Gly Arg Phe Ala Asn His Phe Asp Pro Met
184          195                 200                 205
186 Ser Pro Ile Phe Asn Asp Arg Glu Arg Val Gln Val Leu Leu Ser Asp
187      210                 215                 220
189 Phe Gly Leu Leu Ala Val Phe Tyr Ala Ile Lys Leu Leu Val Ala Ala
190 225                 230                 235                 240
192 Lys Gly Ala Ala Trp Val Ile Asn Met Tyr Ala Ile Pro Val Leu Gly
193                 245                 250                 255
195 Val Ser Val Phe Phe Val Leu Ile Thr Tyr Leu His His Thr His Leu
196              260                 265                 270
198 Ser Leu Pro His Tyr Asp Ser Thr Glu Trp Asn Trp Ile Lys Gly Ala
199          275                 280                 285
```

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PATENT APPLICATION: US/10/069,772B TIME: 14:51:03

Input Set : A:\50669.APP
Output Set: N:\CRF4\10122006\J069772B.raw

```
201 Leu Ser Thr Ile Asp Arg Asp Phe Gly Phe Leu Asn Arg Val Phe His
202     290                 295                 300
204 Asp Val Thr His Thr His Val Leu His His Leu Ile Ser Tyr Ile Pro
205 305                 310                 315                 320
207 His Tyr His Ala Lys Glu Ala Arg Asp Ala Ile Lys Pro Val Leu Gly
208                 325                 330                 335
210 Glu Tyr Tyr Lys Ile Asp Arg Thr Pro Ile Phe Lys Ala Met Tyr Arg
211             340                 345                 350
213 Glu Ala Lys Glu Cys Ile Tyr Ile Glu Pro Asp Glu Asp Ser Glu His
214         355                 360                 365
216 Lys Gly Val Phe Trp Tyr His Lys Met
217     370                 375
221 <210> SEQ ID NO: 3
222 <211> LENGTH: 29
223 <212> TYPE: DNA
224 <213> ORGANISM: Artificial Sequence
226 <220> FEATURE:
227 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
228       primer
230 <220> FEATURE:
231 <221> NAME/KEY: modified_base
232 <222> LOCATION: (12)
233 <223> OTHER INFORMATION: Inosine
235 <400> SEQUENCE: 3
W--> 236 ccdtayttct cntggaarww hagycaycg                                  29
239 <210> SEQ ID NO: 4
240 <211> LENGTH: 27
241 <212> TYPE: DNA
242 <213> ORGANISM: Artificial Sequence
244 <220> FEATURE:
245 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
246       primer
248 <220> FEATURE:
249 <221> NAME/KEY: modified_base
250 <222> LOCATION: (13)
251 <223> OTHER INFORMATION: Inosine
253 <400> SEQUENCE: 4
W--> 254 ccartyccay tcngwbgart crtartg                                   27
257 <210> SEQ ID NO: 5
258 <211> LENGTH: 28
259 <212> TYPE: DNA
260 <213> ORGANISM: Artificial Sequence
262 <220> FEATURE:
263 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
264       primer
266 <400> SEQUENCE: 5
267 gtgagggagt gagagatggg tgtggtgc                                      28
270 <210> SEQ ID NO: 6
271 <211> LENGTH: 28
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RAW SEQUENCE LISTING DATE: 10/12/2006
PATENT APPLICATION: US/10/069,772B TIME: 14:51:03

Input Set : A:\50669.APP
Output Set: N:\CRF4\10122006\J069772B.raw

272 <212> TYPE: DNA
273 <213> ORGANISM: Artificial Sequence
275 <220> FEATURE:
276 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
277 primer
279 <400> SEQUENCE: 6
280 aacacactta cacctagtac tggaattg 28
283 <210> SEQ ID NO: 7
284 <211> LENGTH: 28
285 <212> TYPE: DNA
286 <213> ORGANISM: Artificial Sequence
288 <220> FEATURE:
289 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
290 primer
292 <400> SEQUENCE: 7
293 tattccaaac ttcttaacaa tccacccg 28
296 <210> SEQ ID NO: 8
297 <211> LENGTH: 28
298 <212> TYPE: DNA
299 <213> ORGANISM: Artificial Sequence
301 <220> FEATURE:
302 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
303 primer
305 <400> SEQUENCE: 8
306 caattccagt actaggtgta agtgtgtt 28
309 <210> SEQ ID NO: 9
310 <211> LENGTH: 34
311 <212> TYPE: DNA
312 <213> ORGANISM: Artificial Sequence
314 <220> FEATURE:
315 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
316 primer
318 <400> SEQUENCE: 9
319 attagagctc atgggtgctg gtggtcggat gtcg 34
322 <210> SEQ ID NO: 10
323 <211> LENGTH: 38
324 <212> TYPE: DNA
325 <213> ORGANISM: Artificial Sequence
327 <220> FEATURE:
328 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
329 primer
331 <400> SEQUENCE: 10
332 attactcgag tgacatacac ctttttgatt acatcttg 38
335 <210> SEQ ID NO: 11
336 <211> LENGTH: 18
337 <212> TYPE: DNA
338 <213> ORGANISM: Artificial Sequence
340 <220> FEATURE:
341 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 10/12/2006
PATENT APPLICATION: **US/10/069,772B** TIME: 14:51:04

Input Set : **A:\50669.APP**
Output Set: **N:\CRF4\10122006\J069772B.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 12
Seq#:4; N Pos. 13
Seq#:18; Xaa Pos. 7
Seq#:19; Xaa Pos. 5,8

VERIFICATION SUMMARY DATE: 10/12/2006
PATENT APPLICATION: **US/10/069,772B** TIME: 14:51:04

Input Set : **A:\50669.APP**
Output Set: **N:\CRF4\10122006\J069772B.raw**

L:236 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:254 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
L:639 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0
L:663 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0